



## SATELLITE VI—continued.

Date and G.M.T.				Exposure.	Apparent R.A.			Apparent Dec.			Sat. VI—Jupiter.			
											R.A.		Dec.	
1908.	d	h	m	min.	h	m	s	°	'	"	m	s	'	"
Jan.	3	13	11.6	120	8	53	41.16	17	39	26.7	4	7.05	17	29.6
,,	9	12	41.9	16	8	51	20.86	17	49	11.6	3	51.03	19	36.9
,,	11	13	10.6	90	8	50	30.68	17	52	44.3	3	44.50	20	17.8
,,	11	14	12.8	15	8	59	29.61	17	52	48.9	3	44.35	20	18.6
,,	27	12	41.4	65	8	43	24.62	18	23	58.9	2	35.64	24	20.6
Feb.	1	11	52.1	112	8	41	9.34	18	34	15.4	2	9.24	25	2.8
,,	1	13	13.6	15	8	41	7.84	18	34	22.5	2	8.92	25	3.1
,,	3	10	27.3	80	8	40	17.18	18	38	17.2	1	58.46	25	13.3
,,	3	11	28.4	25	8	40	16.09	18	38	21.9	1	58.18	25	14.2
,,	6	11	35.4	30	8	38	56.58	18	44	32.9	1	41.12	25	26.0
,,	12	8	16.8	10	8	36	28.09	18	56	20.2	1	6.66	25	29.5
,,	12	9	25.1	10	8	36	26.91	18	56	28.1	1	6.39	25	27.2
,,	22	10	56.6	100	8	32	40.70	19	15	22.3	0	6.44	24	26.3
,,	23	8	33.8	42	8	32	22.58	19	16	57.2	- 0	1.20	24	16.8
,,	24	12	24.9	80	8	31	59.88	19	18	58.7	+ 0	5.55	24	2.5
,,	27	10	59.4	70	8	31	5.65	19	23	53.5	0	22.59	23	24.9
,,	28	10	2.9	14	8	30	48.92	19	25	27.2	0	28.04	23	10.7
,,	28	11	28.6	80	8	30	47.89	19	25	33.0	0	28.36	23	9.6
,,	29	9	39.8	50	8	30	32.32	19	27	0.4	0	33.57	22	56.3
Mar.	9	8	40.4	15	8	28	28.12	19	39	48.8	1	21.33	20	8.2
,,	9	10	13.8	30	8	28	27.40	19	39	54.0	1	21.64	20	6.6
,,	9	10	55.6	9	8	28	27.03	19	39	56.0	1	22.74	20	6.1
,,	19	8	41.9	13	8	27	10.46	19	50	43.5	2	6.70	16	3.2
,,	21	9	48.7	120	8	27	2.82	19	52	29.2	2	14.75	15	6.9
,,	23	8	59.0	120	8	26	58.20	19	54	1.4	2	22.12	14	11.3
,,	27	8	54.3	43	8	26	56.53	19	56	38.1	2	35.44	12	16.0
,,	28	9	11.1	180	8	26	57.85	19	57	12.5	2	38.54	11	45.0
,,	31	9	16.4	165	8	27	5.78	19	58	36.7	2	46.98	10	14.5
Apr.	3	9	51.7	90	8	27	19.81	19	59	38.9	2	54.31	- 8	40.7
,,	20	9	21.0	18	8	30	24.95	19	58	4.9	3	12.34	+ 0	11.6
,,	24	9	43.5	100	8	31	32.95	+ 19	55	47.5	+ 3	10.54	+ 2	11.3

## SATELLITE VII.

Date and G.M.T.				Exposure.	Apparent R.A.			Apparent Dec.	Sat. VII—Jupiter.	
d	h	m	min.		h	m	s		R.A.	Dec.
1907.									m	s
Dec.	5	16	17	140	9	1	56.44	+17 54 46.7	-2 56.39	+34 5'3
"	10	15	7.3	66	9	1	14.38	17 56.27.6	3 9.74	32 35.0
"	14	14	48.9	120	9	0	28.40	17 58 24.7	3 18.68	30 58.9
1908.										
Jan.	3	13	11.6	120	8	54	18.91	18 14 29.6	3 29.30	17 33.3
"	11	13	10.6	90	8	51	3.83	18 22 51.1	3 11.35	+ 9 49.0
"	27	12	41.4	65	8	44	9.55	18 40 54.4	1 50.71	- 7 25.1
Feb.	1	11	52.1	112	8	42	3.27	18 46 46.4	1 15.31	12 31.8
"	3	10	27.3	80	8	41	14.97	18 49 10.9	1 0.67	14 19.6
"	3	11	28.4	25	8	41	13.65	18 49 12.2	-1 0.61	14 23.9
"	22	10	56.6	100	8	34	13.10	19 13 36.7	+1 25.96	26 11.9
"	23	8	33.8	42	8	33	55.86	19 14 49.7	1 32.08	26 24.3
"	24	12	24.9	80	8	33	34.27	19 16 22.5	1 39.94	26 38.7
"	27	10	59.4	70	8	32	41.67	19 20 18.0	1 58.61	27 0.5
"	28	11	28.6	80	8	32	24.20	19 21 37.4	2 4.67	27 5.1
"	29	9	39.8	50	8	32	8.79	19 22 50.9	2 10.04	27 5.7
Mar.	21	9	48.7	120	8	28	12.66	19 46 39.3	3 24.59	20 56.8
"	23	8	59.0	120	8	28	3.35	19 48 19.8	3 27.27	19 52.9
"	27	8	54.3	43	8	27	51.66	19 51 12.5	3 30.57	17 41.6
"	28	9	11.1	180	8	27	50.17	19 51 49.8	3 30.86	17 7.7
"	31	9	16.4	165	8	27	50.10	19 53 30.2	3 31.30	15 20.9
Apr.	24	9	43.5	100	8	31	23.31	+19 53 8.3	+ 3 0.90	- 0 29.4

## SATELLITE VIII.

Date and G.M.T.				Exposure.	Apparent R.A.			Apparent Dec.	Sat. VIII—Jupiter.	
d	h	m	min.		h	m	s		R.A.	Dec.
1908.									m	s
Jan.	27	12	41.4	65	8	45	51.86	+18 5 1.4	- 0 8.40	-43 18.1
Feb.	1	11	52.1	112	8	43	20.67	18 17 36.3	+ 0 2.08	41 41.8
"	3	10	27.3	80	8	42	21.90	18 22 25.7	0 6.26	41 4.9
"	3	11	28.4	25	8	42	20.52	18 22 34.7	0 6.26	41 1.3
"	22	10	56.6	100	8	33	35.41	19 5 49.8	0 48.27	33 58.9
"	23	8	33.8	42	8	33	13.98	19 7 37.6	0 50.20	33 36.4
"	24	12	24.9	80	8	32	47.37	19 9 51.3	0 53.04	33 9.9
"	27	10	59.4	70	8	31	42.89	19 15 18.1	0 59.83	32 0.4
"	28	11	28.6	80	8	31	21.76	19 17 6.7	1 2.23	31 35.9
Mar.	27	8	54.3	43	8	26	32.33	19 47 53.5	2 11.24	21 0.6
"	31	9	16.4	165	8	26	40.24	19 49 12.3	2 21.44	19 38.8
Apr.	3	9	51.7	90	8	26	54.72	19 49 38.8	2 29.22	18 40.9
"	24	9	43.5	100	8	31	43.33	+19 41 8.9	+3 20.92	-12 28.8

*Errors of Tabular Place of Jupiter.*

The positions of the satellites given above depend on the positions of certain stars taken from catalogues of the Astronomische Gesellschaft, and will be affected by the mean error in the places of these stars. To eliminate this it is necessary to determine the position of Jupiter referred to the same stars.

For this purpose a number of photographs of Jupiter were taken with the 26-inch refractor, using the occulting shutter. By this means good measurable images of Jupiter were obtained, together with sufficiently exposed images of the reference stars. The field of the 26-inch on a 16 cm. plate is one square degree, and six comparison stars in this area were measured together with Jupiter. The adopted places of these six stars were deduced from measures made on the Astrographic reference plates, the constants of the reference plates being, as mentioned above, derived from all the available stars in the Astronomische Gesellschaft catalogues. The places of the six stars, and therefore the deduced place of Jupiter, will be affected by the mean systematic error of all the catalogue stars on the reference plates, and will thus be comparable with the deduced places of the satellites.

Four photographs were selected for measurement. From two to four images of Jupiter and of each of the stars were measured on each plate in the Astrographic micrometer, and the following are the results obtained:—

*Errors of R.A. Tabular Place of Jupiter.*

	Tab.—Obs.	
	R.A. s	Dec.
Jan. 27	— '10	— 0"6
Feb. 10	— '14	— 0·8
„ 18	— '12	— 0·6
May 6	— '08	— 0·9
Mean	— '110	— 0·72

Corrections for these mean errors have been applied to the tabular places of Jupiter, as already stated.

*Royal Observatory, Greenwich:*  
1908 June 10.

*Observations of the Satellite of Neptune, from photographs taken at the Royal Observatory, Greenwich, between 1907 December 10 and 1908 March 19.*

(Communicated by the Astronomer Royal.)

The following measures of position-angle and distance of Neptune's satellite were made from photographs taken with the 26-inch refractor of the Thompson equatorial. The occulting shutter was used as in previous years. The photographs were taken by Messrs. Davidson, Edney, or Melotte, and were measured in a position-micrometer in direct and reversed positions by Messrs. Davidson and Melotte. The tabular positions with which comparison is made were computed from data given in the *Connaissance des Temps*, based on Dr. Hermann Struve's elements, the eccentricity of the orbit being neglected. A discussion of these residuals gives the following differences from Dr. Hermann Struve's elements in the sense Tabular—Observed :

$$du = -0^{\circ}.69, \quad dN = -0^{\circ}.54, \quad dI = +0^{\circ}.11, \quad da = +0''.244$$

giving for the epoch 1908.2

$$a = 16''.027, \quad N = 188^{\circ}.38, \quad I = 116^{\circ}.24$$

### *Neptune and Satellite.*

*Position-angle and Distance from photographs taken with the 26-inch Refractor.*

Date and G.M.T.					Position-angle.			Distance.		
					Obs.	Tab.	T—O.	Obs.	Tab.	T—O.
1907.	d	h	m	s	°	°	°	"	"	"
Dec.	10	13	47	48	241.68	243.09	+1.41	13.82	14.00	+0.18
	14	12	49	34	341.21	339.80	-1.41	12.04	11.93	-0.11
	14	13	15	59	338.86	338.36	-0.50	11.88	12.02	+0.14
1908.										
Jan.	3	11	35	18(a)	217.90	215.22	(-2.68)	11.16	11.86	(+0.70)
	4	11	13	40(b)	132.17	134.64	+2.47	13.35	13.97	+0.62
	4	11	39	10	133.26	133.58	+0.32	13.75	14.09	+0.34
	9	11	58	11	202.98	203.38	+0.40	10.87	11.37	+0.50
	11	11	27	45	82.99	83.75	+0.76	16.36	16.28	-0.08
	11	11	53	29	82.24	82.99	+0.75	16.30	16.22	-0.08
	27	9	49	5	179.03	178.08	-0.95	10.70	11.20	+0.50
	27	10	13	39	175.19	176.50	+1.31	11.34	11.23	-0.11
Feb.	3	9	15	21(c)	108.18	108.29	+0.11	16.25	16.42	+0.17
	6	10	2	5(d)	285.08	284.32	-0.76	16.23	16.62	+0.39
	6	10	35	58(e)	282.40	283.37	+0.97	16.29	16.67	+0.38
	10	10	0	38(e)	53.51	54.88	+1.37	13.08	13.35	+0.27